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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,626	06/25/2003	Apurva F. Dalia	MSFT120701	5035
26389 7590 07/13/2007 CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC 1420 FIFTH AVENUE SUITE 2800 SEATTLE, WA 98101-2347			EXAMINER SWEARINGEN, JEFFREY R	
			ART UNIT 2145	PAPER NUMBER
			MAIL DATE 07/13/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/606,626	Applicant(s) DALIA ET AL.	
	Examiner Jeffrey R. Swearingen	Art Unit 2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20031208</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's arguments are persuasive. The restriction is withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Sim et al. (US 6,857,012 B2).

4. In regard to claim 1, 10, 14, 28, 34, Sim disclosed:

providing, to a lookup partitioning service server, a resource identifier associated with a storage resource; column 11, lines 52-60

receiving a looked-up storage server location where said storage resource is located from said lookup partitioning service server that is based on said resource identifier; and column 11, lines 52-67

accessing the storage resource at said looked-up storage server location. Column 11, lines 52-67

5. In regard to claim 2, 11, Sim disclosed:

providing an application identifier in addition to said resource identifier, wherein said storage resource is associated with both said resource identifier and said application identifier to located said looked-up storage server location of a partition on a storage server. Column 27, lines 51-67

6. In regard to claim 3, 15, Sim disclosed:

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said looked-up storage server location is a storage partition on one of a plurality of storage servers. Column 27, lines 33-50

7. In regard to claim 4, 16, Sim disclosed:

a plurality of storage partitions, said plurality including a primary storage partition and a redundant storage partition, each containing said storage resource. Column 27, lines 33-50

8. In regard to claim 5, 17, Sim disclosed:

said primary storage partition and said redundant storage partition are each located on separate storage servers of said plurality of storage servers. Column 28, lines 50-67

9. In regard to claim 6, 18, Sim disclosed:

if the primary storage partition is unavailable, the looked-up storage server location is the redundant storage partition. Column 27, lines 44-47

10. In regard to claim 7, 12, 19, 29, Sim disclosed:

determining which lookup partitioning service server of a plurality of lookup partitioning service servers, will provide said looked-up storage server location in response to said resource identifier. Column 27, line 61-column 28, line 12

11. In regard to claim 8, 13, 20, Sim disclosed:

processing said resource identifier through a hash function to provide a hashed resource identifier associated with a particular lookup partitioning service server.

12. In regard to claim 9, 21, Sim disclosed:

each lookup partitioning service server is associated with a predetermined set of hashed resource identifiers. Column 31, line 39 - 60

13. In regard to claim 22, 30, Sim disclosed:

moving the storage resource from one storage partition to a new storage partition and updating said resource lookup store with said new storage partition. Column 31, lines 23-37

14. In regard to claim 23, Sim disclosed:

determining that no storage resource exists; column 19, line 60 – column 20, line 39

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creating a new storage resource in a storage partition; column 19, line 60 – column 20, line 39

associating said resource identifier with said storage partition in said resource lookup store; and column 24, lines 25-44

providing said location of said storage partition to said front end server. Column 24, lines 25-44

15. In regard to claim 24, 32, Sim disclosed:

calculating a load balancing factor for each storage partition of a plurality of storage partitions and using said load balancing factors to determine the storage partition in which said new storage resource should be created. Column 27, line 61 – column 28, line 12

16. In regard to claim 25, 33, Sim disclosed:

said load balancing factor is based on value selected from the values consisting of: a mapping number, a count of mapping accesses, and a manual weighting value. Column 27, line 61 – column 28, line 12

17. In regard to claim 26, 45, Sim disclosed:

adjusting a manual weighting value to increase the usage of said one of said storage servers. Column 30, lines 19-34

18. In regard to claim 27, 46, Sim disclosed:

adjusting a manual weighting value to decrease the usage of said one of said storage servers. Column 30, lines 19-34

19. In regard to claim 31, Sim disclosed:

failing to locate a mapping to a storage resource; column 19, line 60 – column 20, line 39
creating a new storage resource in a storage partition; column 19, line 60 – column 20, line 39

mapping said resource identifier to said storage partition in said resource lookup store; and column 24, lines 25-44

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sending said location of said storage partition to said front end server. column 24, lines 25-44

20. In regard to claim 35, Sim disclosed:

a front end server communicatively coupled to said LPS server for receiving requests for access to storage resources from client devices, said requests for access including an RID.

Column 33, lines 26-45

21. In regard to claim 36, Sim disclosed:

a storage server, communicatively coupled to said front end server, including a plurality of storage partitions for storing storage resources, each storage resource associated with an RID.

Column 33, lines 26-45

22. In regard to claim 37, 41, Sim disclosed:

a plurality of storage servers, each of said plurality of storage servers including a plurality of partitions. Column 33, lines 26-45

23. In regard to claim 38, 42, Sim disclosed:

each storage resource is stored in a primary partition on one of said plurality of storage servers and in a redundant partition on another of said plurality of storage servers. Column 17, lines 36-54 - mirroring

24. In regard to claim 39, Sim disclosed:

a lookup store for storing location information that associates storage partition locations with RIDs. Column 27, lines 31-50

25. In regard to claim 40, Sim disclosed:

a plurality of LPS servers, said lookup store being stored on at least two of said LPS servers, one of said at least two LPS servers functioning as a primary LPS server for the lookup store and the other functioning as a redundant LPS server for the lookup store. Column 27, lines 31-67

26. In regard to claim 43, Sim disclosed:

said front end server includes a hash table; and column 27, lines 31-67

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said RIDs received by said front end server are processed through said hash table to identify which of said plurality of LPS servers functions as said primary LPS server. Column 27, lines 31-67

27. In regard to claim 44, Sim disclosed:

calculating a load balancing factor for each storage server of a plurality of storage servers and using said load balancing factors to determine the storage partition in which said new storage resource should be created. Column 27, line 61 – column 28, line 12

28. In regard to claim 47-49, Sim disclosed:

obtaining a resource identifier to be associated with the storage resource from a front end server; column 11, lines 52-60

utilizing said resource identifier to determine in a lookup store of a lookup partitioning service server that no storage resource exists; column 11, lines 52-67

calculating a load balancing factor for each storage server of a plurality of storage partitions; Column 27, line 61 – column 28, line 12

determining, using said load balancing factors, the storage partition in which said new storage resource should be created; Column 27, line 61 – column 28, line 12

creating a new storage resource in said storage partition; column 19, line 60 – column 20, line 39

associating said resource identifier with said storage partition in said resource lookup store; column 24, lines 25-44

providing said location of said storage partition to said front end server; and column 24, lines 25-44

granting access to the storage resource by providing said location of said partition of said storage server to said front end server. Column 11, lines 52-67

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Krishnamurthy, Balachander et al. "On the Use and Performance of Content Distribution Networks." Proceedings of the 1st ACM SIGCOMM Workshop on Internet Measurement. ACM Press. November 2001. 169-82.

Wang, Limin et al. "The Effectiveness of Request Redirection on CDN Robustness." ACM SIGOPS Operating Systems Review. ACM Press. Vol 36 Issue SI. December 2002. 345-60.

Mogi, Kazuhiko et al. "Hot mirroring: A method of hiding parity update penalty and degradation during rebuilds for RAID5." Proceedings of the 1996 ACM SIGMOD international conference on Management of data. ACM Press. Vol 25 Issue 2. June 1996. 183-94.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Swearingen whose telephone number is (571) 272-3921. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on 571-272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jason Cardone
Supervisory Patent Examiner
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JRS

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